SPECIFICATION AMENDMENTS

<u>In the Specification:</u>

Please amend the specification by inserting, beginning on page 5, line 14, the following paragraphs:

Figure 11 is a block diagram of one embodiment of an energy conversion system using a device constructed and operated in accordance with the present invention.

Figure 12 is a block diagram of another embodiment of an energy conversion system using a device constructed and operated in accordance with the present invention.

Figure 13 is a schematic representation of one embodiment of a device constructed in accordance with the present invention.

Figure 14 is schematic representation of one embodiment of a cathode structure used in a device constructed in accordance with the present invention.

On page 11 of the specification, please replace the paragraph beginning on line 4 with the following amended paragraph:

The refrigeration coefficient of performance can be enhanced by increasing the average energy of emission f_{ave} and by decreasing the cathode-anode bias (E_{FB} - E_{FA}). While the former is a complicated function that involves quantum tunneling and material properties, the

latter can be reduced substantially by the presence of a gate electrode. Such a scenario is shown in the band diagram of Fig. 3, which shows the biased state with three electrodes (base, gate, anode). The gate electrode produces appropriate electrical conditions (e.g., electric fields) to enable emission from the base electrode into the cathode and from the cathode into vacuum. The gate is designed to extract electrons from the cathode while allowing emitted electrons to bypass the gate. Thus, the gate should be porous to allow electrons to proceed to the anode. ~~Fig. 3~~ Fig. 4 shows an annular gate structure that provides appropriate electrical conditions for cathode emission, while also providing a path to the anode. The anode's energy level (EFA) is maintained at a higher level than that of the gate but still allows electrons emitted from the cathode to reach it.